



Social Information Systems

Chapter 1: Introduction

Presented By: *Dr. Marwa Khairy*

Agenda

- What is Information System
- Information Concepts
- Information System Components
- Major Capabilities of IS
- Types of Information Systems
 - TPS
 - MIS
 - DSS
 - EIS
 - ES
 - OAS

What is Information System

An integrated set of components for collecting, storing, and processing data and for providing information, knowledge, and digital products.

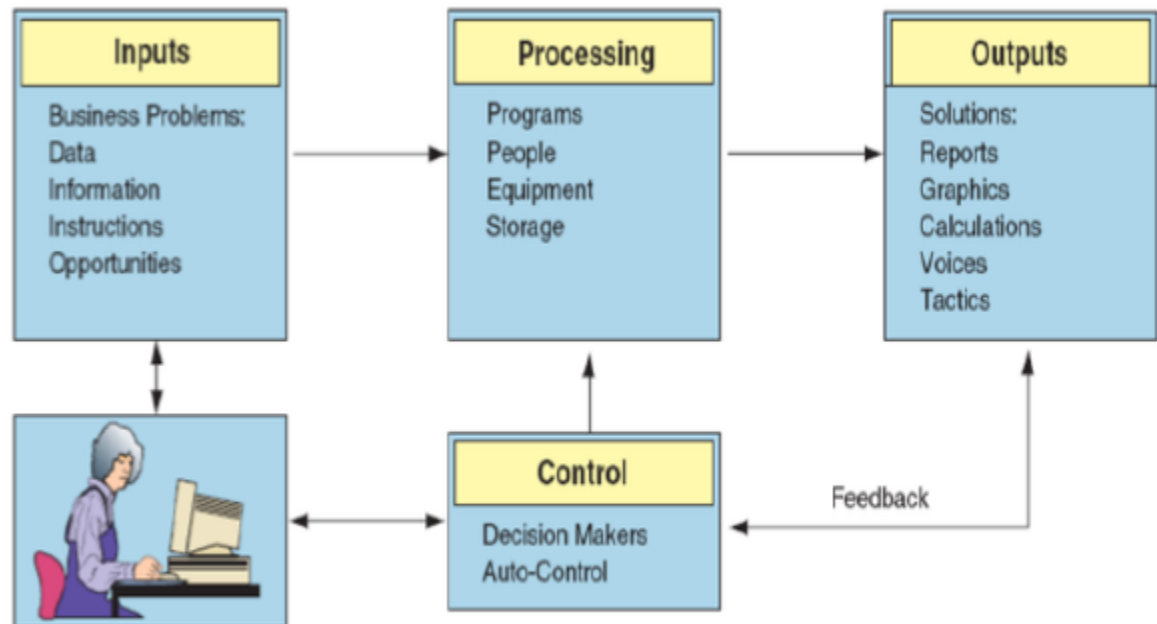
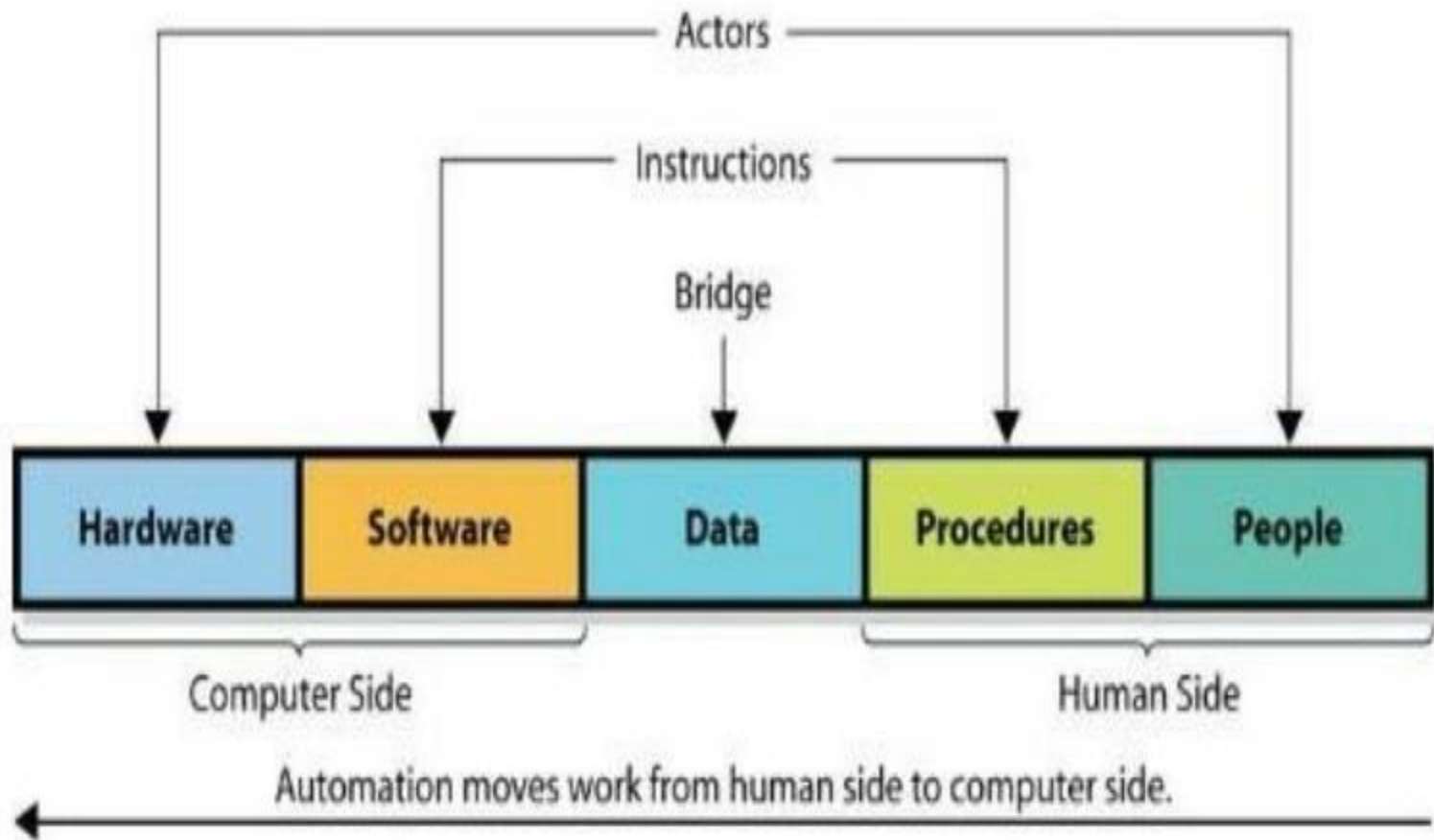


Figure 1.1: Information system functions.

Information Concepts

- Data, information, and knowledge
- **Data**: Raw facts
- **Information**: Collection of facts organized in such a way that they have additional value beyond the value of the facts themselves
- **Process**: Set of logically related tasks performed to achieve a defined outcome
- **Knowledge**: Awareness and understanding of a set of information

Information System Components



- **Hardware:** Computer equipment used to perform input, processing, and output activities
- **Software:** Computer programs that govern the operation of the computer
- **Database:** Organized collection of facts and information
- **Telecommunications:** Electronic transmission of signals for communications
- **Networks:** Connect computers and equipment in a building, around the country, and around the world
- **Internet:** World's largest computer network
- **People:** Manage, run, program, and maintain the system
- **Procedures:** Strategies, policies, methods, and rules for using information system.

Major Capabilities of IS

- Perform high-speed, high-volume computations
- Provide fast, accurate communication and collaboration within and among organizations
- Store huge amounts of information in an easy-to-access, yet small space
- Allow quick and inexpensive access to vast amounts of information, worldwide
- Interpret vast amounts of data quickly and efficiently
- Automate both semiautomatic business processes and manual tasks

Types of Information Systems



Transaction Processing System (TPS)

The main purpose of Transaction Processing System to fulfill the basic needs of record keeping of an organization.

Example

- Payroll System
 - Billing Systems
 - Purchasing System
 - Shipping of record
-
- Its data is used for report generation. These can be monthly, quarterly or yearly reports or any on demand reports depending upon the needs of organization. Transaction Process System deals with routine transactions effectively.

Management Information System (MIS)

- Management Information System is also used by the management, but it differs from the Transaction Processing System (TPS) in a way that it provides summaries of routine nature to the management.
- The different kinds of data including sales, purchase, production is consolidated in MIS.
- Usually, this data is collected from internal sources. Summaries are prepared from this data used by managers and decision makers.
- This system can also support the marketing and revenue departments to enhance the operational efficiency and tracking the progress of the organization.

Decision Support System (DSS)

- Decision Support System analyze the data which is used in decision making by the management of the organization. Data can be from internal or external sources.
- For example, if the management needs to asses the prices of a product, may use data from external sources i.e. market prices.
- DSS comes in a way when the data is more complex and is required in decision making.
- It helps the decision-makers to in a process of decision making.
- It may also involve databases and spreadsheets, complex in nature, for creating models in difficult and important situations.

Executive Information System (EIS)

- Executive Information System also known as Executive Support System. It is developed for the Senior Management of the organization.
- It helps them to analyses the trends by viewing various reports including summaries; and then making the strategic decisions for the business.
- These kinds of systems are easy to use and have many kinds of reports especially graphical type reports. The reports are prepared from large sets of data collected from various sources.
- For example, the management may require data of sales of the organizations that may be department wise or product wise ranging over a specific period. The system also includes information about inventory, assets and revenue either collected or projected.

Expert System (ES)

- Expert systems can be defined as programs that help the computer make decisions (i.e., consulting service system) in a similar way as an expert in specific domain, a particular subject area of interest.
- These systems can reason, diagnose problems and offer remedies.
- It aims at formalizing expertise and make it available for repetitive type of business decisions.
- It makes use of artificial intelligence to generate knowledge out of the information, existing theories, beliefs and experiences of managers in various business activities.

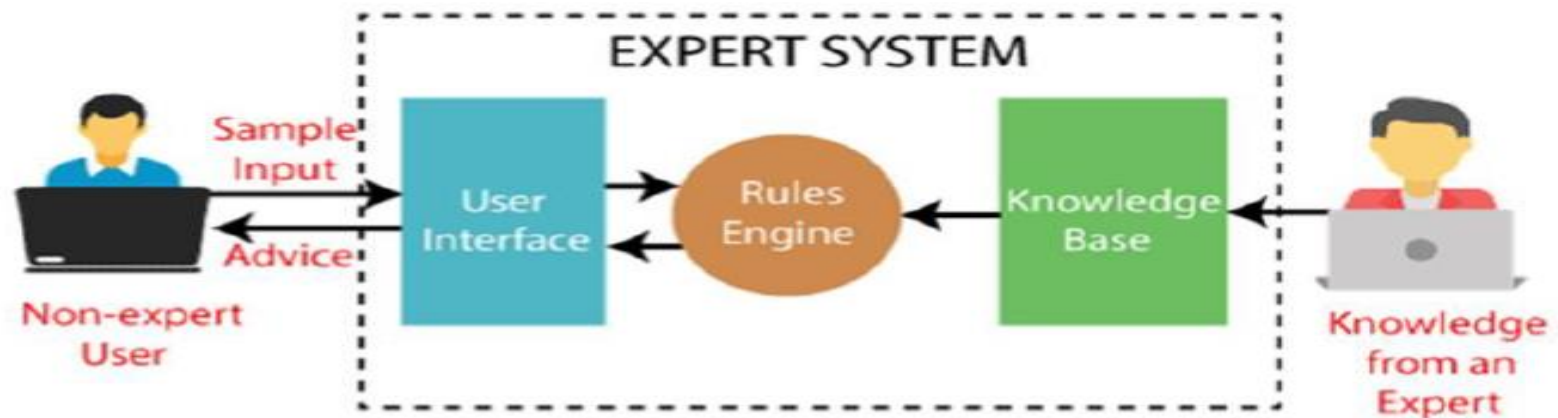


Figure 1.4 shows an expert system overview.

Office Automation System (OAS)

- Office automation is the integration of computer, telecommunications and office equipment technologies to improve the execution of business functions through increasing the productivity, effectiveness and working conditions of office support.
- The concept of office automation encompasses the application of computer and communication technology to improve the productivity of all types of office workers including clerical, administrative, professional and executive.



Geographic information system

- A **geographic information system (GIS)** consists of integrated computer hardware and [software](#) that store, manage, [analyze](#), edit, output, and [visualize geographic data](#).^{[1][2]} Much of this often happens within a [spatial database](#); however, this is not essential to meet the definition of a GIS.
- In a broader sense, one may consider such a system also to include human users and support staff, procedures and workflows, the [body of knowledge](#) of relevant concepts and methods, and institutional organizations.

Accounting information system

- An **accounting information system** (AIS) is a system of collecting, [storing](#) and processing financial and [accounting](#) data that are used by [decision makers](#).
- An accounting information system is generally a computer-based method for tracking accounting activity in conjunction with information technology resources.
- The resulting financial [reports](#) can be used internally by management or externally by other interested parties including [investors](#), [creditors](#) and tax authorities.
- Accounting information systems are designed to support all accounting functions and activities including [auditing](#), [financial accounting](#) reporting, -managerial/ [management accounting](#) and [tax](#). The most widely adopted accounting information systems are auditing and financial reporting modules.

Information systems security

- Information systems [security](#) is responsible for the integrity and safety of system resources and activities.
- Most organizations in developed countries are dependent on the secure operation of their information systems.
- In fact, the very fabric of societies often depends on this security. Multiple infrastructural grids—including power, [water supply](#), and health care—rely on it.
- Although instances of [computer crime](#) and abuse receive extensive media attention, human error is estimated to cause greater losses in information systems operation.

Social Information Systems

- Are information systems based on social technologies and open collaboration.
- They comprise a large variety of software including social networking platforms, online/content communities, collaborative project management tools collaborative technologies, blogs, wikis, and sites for crowdsourcing being among the well-known



Any Questions?

Social Information Systems

Chapter 2: Social Information System

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Agenda

- Concept of Sociability
- Social Information Systems
- Traditional information systems vs Social information systems
- Features of Social Information System
- Social Information Systems Paradigms
- Capabilities of Social Information Systems
- Types of Social Information Systems
- Social Media Information System (SMIS)
- SMIS Roles



Concept of Sociability

- Social” is a wide phrase that can be used to a variety of situations and events, and so has numerous meanings.
- It can refer to or characterize human society, suggest a predilection for living in groups, or define a feature that describes the experiences, behaviour, or interactions of people who form groups.



Social Information Systems

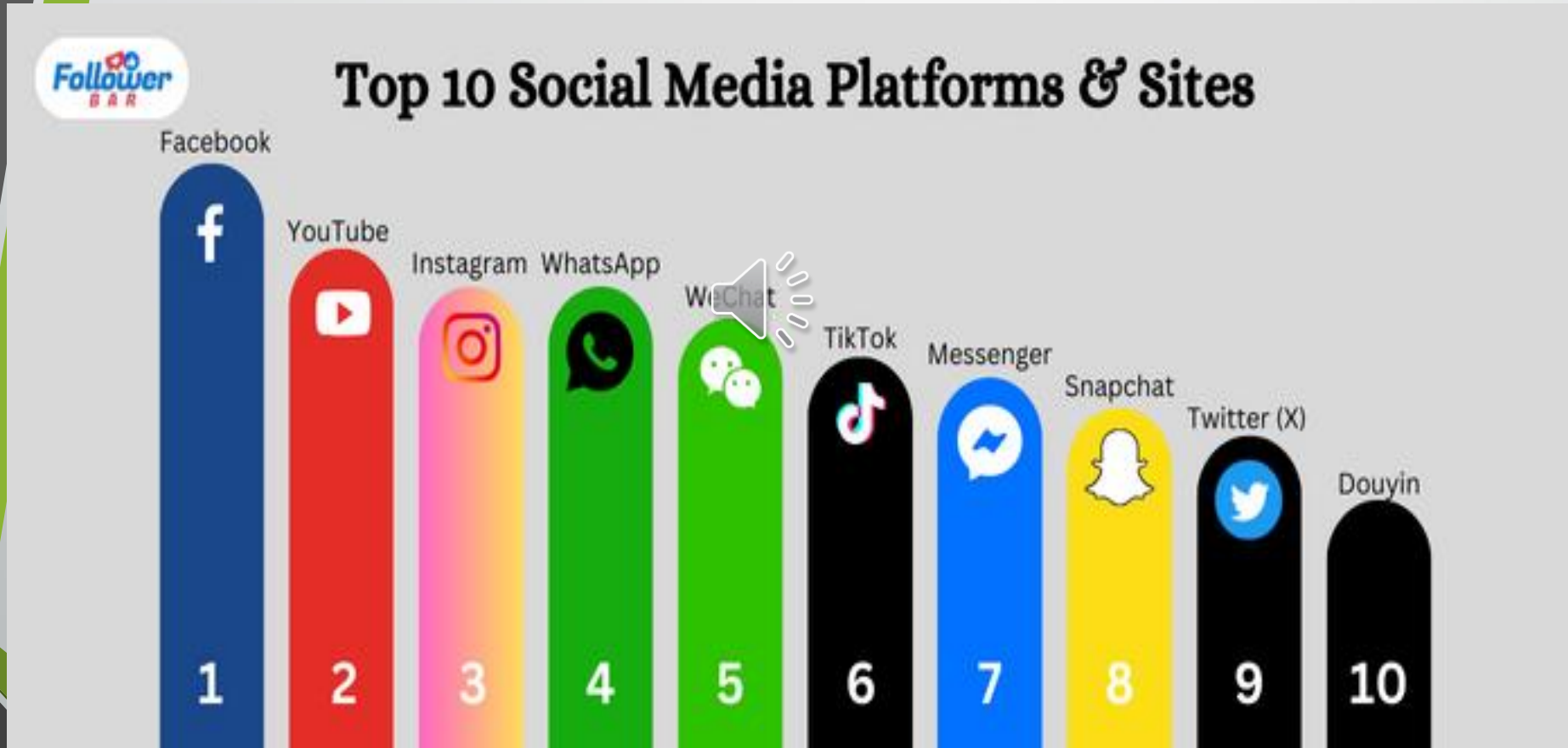
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Traditional information systems vs Social information systems

Unique Feature of Social Information Systems		
	Social Information Systems	Traditional Information Systems
Sociality	Community; focus on information exchange	No community; focus on information processing
Openness	Large number of users; voluntary contributions	Limited number of users; mandatory use
Contributors	Externals, employees outside of formal hierarchy	Employees
Contents	User-generated	Generated by professionals or generated automatically
Technology	Lightweight tools, flexible structures, open source software	Often complex, fixed structure; commercial software
Location	Online; networked	Offline; local



Top 10 Social Media Platforms & Sites In The World (2024)



Features of Social Information System

- **Sociality:** Social interaction is the foundation of social information systems. Prior social ties with other participants will influence an individual's decision to engage.
- **Openness:** Most social information systems do not have a set number of participants. Instead, the system is open to a wide spectrum of authors and participants. The decision to participate is usually voluntary.
- **Contributions:** Individuals that contribute to and participate in social information systems are generally self-contained end-users. Employees that work in social information systems may perform exceptionally effectively outside of their traditional organizational roles.



- **Content:** Users generate the data that passes through social information networks. All participants have access to the content. The material is interactive, shareable, and evolves over time.
- **Technology:** Wikis, social networking sites, collaborative platforms, blogs, and other social (media) tools are used to power the technology. These tools are usually simple to use, have a flexible structure and size, and are frequently free source.
- **Location:** Web-based social information systems are online systems. They are normally accessible via a browser and are housed on a Web server. As a result, no local installation is required on the users' computers.

Social Information Systems Paradigms

- Social Information System is as information systems that support four paradigms:
 - **Weak ties**
 - **Social production**
 - **Egalitarianism**
 - **Mutual service provisioning**



Weak ties

- According to the weak tie theory, an individual's **strong ties** are typically composed of people who are similar to them in terms of demographics, values and interests. These individuals tend to share a lot of the same information and resources, and as a result, they are not likely to be sources of novel or diverse information.
- In contrast, **weak ties** are typically composed of people who are less like us and who have access to different social circles and networks. As a result, they are more likely to be sources of novel and diverse information, which can be especially valuable for individuals looking to find a new job or pursue new opportunities.



Social production

- "Social Production" refers to the process of creating, curating, and distributing multimedia content across various social media platforms to engage with and attract a target audience.
- This involves using video and image assets, optimizing content for platform algorithms, and implementing data-driven strategies to maximize engagement and reach.
- Use Case
- **Marketing Campaigns:** A company looking to launch a new product or service could use social production to create and distribute engaging multimedia content across social media platforms. This could include creating promotional videos, designing eye-catching images, and crafting compelling written content, all optimized for different social media algorithms to attract and engage with a target audience, ultimately driving traffic and conversions for the business.

Egalitarianism

- The attitude of treating people fairly.
- Egalitarianism is very important in social information systems, therefore they seek to give all participants the same rights to contribute



Mutual service provisioning

- The extent to which two actors reciprocate each other's friendship or other interaction.
- The idea that service providing is a mutual process of service exchange is introduced by social information systems, which overcomes the separation of the service provider and the consumer.



Capabilities of Social Information Systems

- **Organizational Extensibility**

- social information systems allow people to be linked to organizational units. These individuals may come from within the organization or from outside sources.
- Internal and external stakeholders (including as consumers, suppliers, shareholders, and government agencies) have become critical components of social information systems.

- **Flexible Definition and Control of Tasks**

- By allowing users to design new activities and the workflows for completing them, social information systems help to promote the social production paradigm.



- **Crowdsourced Decision support**

- The amount of data available for analysis is maximized through social production and egalitarian decision-making
- Data from a social information system, for example, might be utilized to forecast consumer demand and improve resource allocation.

- **Distributed Value creation**

- Participants in social information systems can perform duties associated with both producer and consumer roles.



Types of Social Information Systems

- **Enterprise 2.0**
 - The use of social information systems within businesses to stimulate communication and innovation is known as Enterprise 2.0.
 - Enterprise 2.0 is characterized as the usage of social software within businesses, such as wikis and blogs.
- **Social Business Process Management**
 - Social information systems are used in social business process management (SBPM) to improve the business process management lifecycle as well as to revolutionize business processes



- **Social Customer Relationship Management**

- By utilizing weak ties, CRM's reach is expanded, and other sources for customer-related decisions are made available.
- Customer relationship management, customer service, marketing and sales, and customer engagement in development are four areas inside businesses that may benefit from enterprise 2.0.

- **Social Business Intelligence**

- The use of data from social information systems as a source for analytics to support business-related decisions is known as social business intelligence.
- The availability of massive datasets benefits approaches such as machine learning and deep learning.



Social Media Information System (SMIS)

- The use of information technology to support the sharing of material among networks of people is referred to as social media.
- It allows users to form practice communities which are groups of people who share a common interest.
- A social media information system is an information system that supports the sharing of content among networks of users.



SMIS Roles

- In social media, three organizational units play the most important roles: ***social media providers, users, and communities.***
- Popular sites like Facebook, Google+, Twitter, LinkedIn, and Pinterest are examples of social media **providers** that provide platforms for the establishment of social networks.
- Individuals and organizations who use social media sites to create social ties are considered **users**.
- **Communities** in social media are basically groups of users rallying around a common interest or goal.

Any Questions?



Social Information Systems

Chapter 3: Online Community

Presented By: *Dr. Marwa Khairy*



Agenda

- **Overview**
- **Online Community Characteristics**
- **Online Community Types**
- **Roles in an online community**
- **Challenges to Scale Online Community**



challenges to scale online community

Overview

- An online community is a community whose members interact with each other primarily via the Internet. Members of the community usually share common interests.
- An online community could be defined as: A group of individuals who have a common interest and interact through a virtual environment facilitated by computer mediated communications with some level of:
 - Interactivity.
 - Variety of communicators.
 - Enjoyment.
 - Sustained membership.
 - Common values.
 - Socialization.



Examples	Applications
Friendship networks	College/school students, Organizations or web(Facebook, MySpace, etc.)
Follower networks	Twitter, LinkedIn, Pinterest, etc.
Preference similarity networks	Pinterest, Instagram, Twitter, etc.
Interaction networks	Phone calls, Messages, Emails, Whatsapp, Snapchat, etc.
Co-authorship networks	Dblp, Science direct, Wikibooks, other scientific databases, etc.
User-user citation networks	Dblp, Science direct, Wikibooks, other scientific databases, etc.
Spread networks	Epidemics, Information, Rumors, etc.
Co-actor networks	IMDB, etc.

- Table 3.1: Some examples of Online Communities



Online Community Characteristics

- **Heterogeneity:** Multiple types of entities, such as users, tags, comments, and contents, are intermingled in content sharing platforms like Flickr and YouTube.
- **Large-Scale Networks:** Social media networks are generally significantly greater in scope than traditional social network analysis
- **Collective Intelligence:** Crowd knowledge, in the form of tags and comments, is frequently available on social media. Is it feasible to use collective intelligence to aid in the comprehension of group structures and properties
- **Evolution:** Every day, new users join social media networks, and new relationships form between current members



Not an Online Community

- A **static web site**: just displays content in a non-interactive way and so cannot be considered an online community.
- **E-commerce**: is a type of product and service distribution channel that uses the Internet. The first three requirements of the above definition of an online community are not met by this type of marketing.
- **E-business**: which combines E-commerce with the provision of back-office assistance, likewise fails to satisfy the requirements for an online community.
- Furthermore, there are a number of **Internet services** that do not reflect an online community due to a lack of ongoing and maintained membership.
- Examples of these services are **e-commerce book sellers** that include user reviews, Customer Relationship Management systems that allow consumers to discuss their experiences, and life mate matching services.



Online Community Types



1. Knowledge and learning communities

- For brands that center on knowledge-sharing and learning, this kind of online community can help connect to a wider audience and enhance a brand's voice and authority in their sector.
- Academic and educational publisher [Springer Nature](#) has over 35 active online communities focusing on its publication titles. These include communities for ecology, cancer research, biopharma, and sustainability.



2. Expert networks and advisory communities

- Expert networks and advisory communities are particularly well suited for businesses that provide dynamic insights.
- Professional services firms, membership organizations and more, can use their expert networks to showcase the expertise and experience of their consultants and advisors, and to engage in conversations with customers and prospects about the challenges they are facing.
- It also provides members with more efficient networking and collaboration opportunities.



3. Event communities

- Event organizers are well-versed with the need to go digital in the lockdown era, to build resilience and continuity into operations.
- In-person events simply aren't possible in the volume or format available before, unfortunately, it seems, for some time to come.
- Online communities can facilitate virtual events as well as hybrid offerings once in-person events can return.



4. Membership communities

- Enabling people to come together, discover new experts, challenge one another, and collaborate is the essence of any form of network, virtual or otherwise
- Online communities can help them meet that goal, pulling together groups of people from different businesses, industries, and countries in a single, owned space.
- Additionally, at a time when networking can be challenging but opportunities to connect online are so accessible, online communities provide the ideal solution to distant audiences and fragmented channels.



5. Brand communities

- The success of leading industry brands can be attributed to the trust and authentic relationships they build with their customers.
- To become a growing, sustainable, market-leading organization, you need to home in on what your customers require, desire and their concerns and challenges.
- Online communities can help you achieve this by delivering deeper audience engagement and showcasing your brand's expertise.



6. Communities of action

- Combine all the above with a collective mission to change the world and you've got a supercharged community of members united with a common vision.
- Online communities are the ideal places to foster ideas, troubleshoot challenges, collaborate, communicate with different experts, and ultimately deliver impact on a grand scale.
- The online community enables conservationists and wildlife enthusiasts to share knowledge and insights that will improve conservation projects and save more wildlife.



Roles in an online community

- **Community architect** – Creates the online community, sets goals and decides the purpose of the site.
- **Community manager**– Oversees the progress of the society. Enforces rules, encourages social norms, assists new members, and spreads awareness about the community.
- **Professional member** – This is a member who is paid to contribute to the site. The purpose of this role is to keep the community active.
- **Free members** – These members visit sites most often and represent most of the contributors. Their contributions are crucial to the sites' progress.



- **Passive lurker**– These people do not contribute to the site but rather absorb the content, discussion, and advice.
- **Active lurker** – Consumes the content and shares that content with personal networks and other communities.
- **Power users** – These people push for new discussion, provide positive feedback to community managers, and sometimes even act as community managers themselves. They have a major influence on the site and make up only a small percentage of the users.



Online communities Problems

- Online communities present the problems of preoccupation, distraction, detachment, and desensitization to an individual, although online support groups exist now.
- Online communities do present potential risks, and users must remember to be careful and remember that just because an online community feels safe does not mean it necessarily is.
- **Trolling and cyber bullying**
- **Hazing**
- **Privacy**
- **Reliability of information**
- **Legal issues**



Challenges to Scale Online Community

- Rising levels of spam and abuse.
- Declining quality of discussions.
- Declining sense of trust/community.
- Participation inequality.
- Highlighting quality and authority
- Answering questions at scale.
- Privacy, security, and legal threats.
- Demands upon technology.
- Managing a team and volunteers.



Building Successful Online Communities

- **1. Content:** Try to make your content both unique and specific to your business, audience or niche.
- **2. Shareability:** .Your content should be easily shareable on Twitter, Facebook and LinkedIn as a minimum by the visitors to your website.
- **3. Social Media:** Sharing your content out to your social media platforms will raise its visibility and also make it more likely to also be shared from within your social circles.
- **4. Community engagement:** When a visitor leaves a comment on your blog or social media status, they will expect to be replied to. Responding to these types of communication shows you care and makes your audience and community members feel important.
- **5. Give credit:** When a member does something good within the community be sure to give credit.



- **6. Promotion:** When a community member does something good be sure to spread the word within the community and socially. Be sure to give back to the community and genuinely thank them for their efforts.
- **7. Guest posts:** Be willing to ask for guest posts within your community and be sure to provide posting guidelines to assist with content writing and the general tone of voice of your website.
- **8. Be unique, be yourself:** They will therefore be looking for unique content and a reason to come back to your website and become part of your online community. Don't be false, just be yourself and genuine at all times. Be transparent in your guidelines and open and honest about your business.
- **9. Consistency:** Be active, respond to comments and be visible in your forum. Also, ensure your message and general tone of voice is consistent with the purpose of your site and community.
- **10. Give it time:** Success takes time, so does building an audience and community. It takes time to build a communities trust and involvement.





Any Questions?